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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/582,215	06/08/2006	Robert Greiner	4001-1220	3850
466 7590 12/02/2008 YOUNG & THOMPSON 209 Madison Street Suite 500 ALEXANDRIA, VA 22314			EXAMINER KHATRI, PRASHANT J	
			ART UNIT 1794	PAPER NUMBER
			MAIL DATE 12/02/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/582,215

Applicant(s)

GREINER ET AL.

Examiner

PRASHANT J. KHATRI

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

In response to Amendments/Arguments filed 9/9/2008. Claims 9-18 were amended.

Claim 19 was added.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 9-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. As support, Applicant points to page 5 of the specification. However, while this provides support to recite that the conductive filler is present in amount of 30-70%, 33-68%, or 35-65%, this does not provide support to recite that the conductive fiber is present in amount of at least 30% by weight which includes all amounts greater than 30%, i.e. 75%, 90%, etc. for which there is no support in the specification.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 9-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Iwase et al. (***US 4,882,227***).

3. Iwase et al. disclose a conductive resin composition and molded product using the same. Prior art discloses the conductive resin is comprised of a thermoplastic polymer and a conductive filler material further comprising a low-melting point metal compound and electric conductive fibers (***abstract***). Regarding the low-melting point metal compound, prior art discloses the material is a lead/tin solder base (***col. 2, lines 12+***). As evidenced by the Naval Welding Materials Handbook, lead/tin solders have a melting temperature of 361°F, which when converted is about 183°C (***p. 1-29+***). Furthermore, Examiner considers these temperatures to be inherent to the disclosure by Iwase. The conductive filler material is a metal fiber comprising copper, stainless steel, aluminum and the like (***col. 2, lines 4+***). Furthermore, prior art discloses the diameter of the conductive fiber and resin material is about 5 to 100 microns (***col. 2, lines 9+***) and the length is of about 5 to 8 mm (***col. 5, lines 19+***). Additionally, the conductive fiber materials are present from about 0.5 to 80 wt% (***col. 3, line 55***) and as evidenced by Example 2, are present in 60 wt% of the composition (***col. 7, lines 49-50***). Furthermore, prior art discloses in Example 2 the total weight measured by parts by

weight of the conductive fibers and low-melting point metal as equaling 49 parts by weight. The total parts by weight of the composition is 72 parts by weight and dividing sum of the conductive fibers and low-melting point metal over the total parts by weight yields a total of about 68.1 wt% (**Table 2**). The conductive filler material and resin are simultaneously injection molded to produce a molded product (**Example 2; col. 7, lines 38+**). The thermoplastic resin comprises polypropylene, polystyrene, and the like (**col. 3, lines 49+**). Concerning the specific volume resistivity, prior art discloses an embodiment (**Example 2**) containing all the elements claimed by Applicants with a volume resistivity of about $3.0 \times 10^{-3} \Omega\text{-cm}$ or less (**Table 2**). Regarding the formation of a fiber network, Examiner takes the position that the formation of said network is inherent to the disclosure as the fibers are surrounded by a polymer matrix and after processing would result in the metal fibers interposed within the matrix. Concerning claim 19, it is noted that the disclosed conductive resin composition is used to form a molded product (**col. 6, lines 41+**).

4. Claims 9-10, 12-17, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Ito et al. (**US 4,582,661**).
5. Ito et al. disclose a composition for use in electromagnetic wave shielding materials. The composition comprises of a thermoplastic embedding material, metallic fibers, and a stabilizing material. The thermoplastic material is a vinyl chloride polymer or copolymer and other like thermoplastic polymers (**col. 2, lines 3+**). The metallic fibers are of a copper or copper alloy material and comprise of 30-70 wt% of the total

composition (**abstract**). The fibers have a diameter of 20 to 80 microns and a length of 1 to 6 mm (**col. 4, lines 31+**). The volume resistivity of the material after processing is from 0.005 to 0.1 Ω -cm (**col. 4, lines 21+**). The metal compound used by prior art are chosen from a group comprising lead-type stabilizers, tin-type stabilizers, and other known complex stabilizer (**col. 3, lines 18+**). Examiner takes the position that the above comprise a metal with an organic compound, which would meet the present element of "metal compound" claimed by Applicants. Furthermore, as evidenced by Hawley's Condensed Chemical Dictionary, the melting point of dibutyltin maleate, a metal compound disclosed by prior art, is 110°C. Examiner considers the above inherent to the disclosure by Ito. Regarding the processability of the above composition, the composition is injection molded to create electronic parts (**col. 5, lines 23+**). Regarding the formation of a fiber network, Examiner takes the position that the formation of said network is inherent to the disclosure as the fibers are surrounded by a polymer matrix and after processing would result in the metal fibers interposed within the matrix.

6. Claims 9-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Katsumata et al. (**US 5,554,678**).

Katsumata et al. disclose an electroconductive resin material comprising a low-melting point metal compound, electroconductive fibers and/or particles, and a thermoplastic resin (**abstract**). The thermoplastic resin comprises polystyrene, ABS, PET, and other like materials (**col. 2, lines 37+**). The low-melting point metal compound is comprised

of tin and has a melting point of 100°C to 250°C (**col. 2, lines 3+**). The metal conductive fiber is comprised of copper and other conductive metals and has a diameter of 5 to 100 microns with a length less than 10 mm (**col. 1, lines 53+**). The filler material further comprises a carbon fiber material or carbon black material (**col. 4, lines 3+**).

Examiner takes the position the carbonaceous material (i.e. carbon fiber and carbon black) is a known conductive material in the art. Concerning the copper fibers, prior art discloses the fibers comprise 0.5 to 30 wt% of the total composition (**col. 1, lines 62+**). The carbonaceous material is from about 0.5 to 50 wt% (**col. 2, lines 30+ for Carbon Fiber; col. 4, lines 8+ for Carbon Black**). Examiner takes the position that the sum of the conductive materials (i.e. the copper fibers and carbonaceous material) will span from 1 to 80 wt% of the total composition and would encompass the range claimed by Applicants. Furthermore, as shown by prior art, the total composition of the metal fiber, low melting point metal, and vapor-phase grown carbon fibers has a total of 60 wt% (**Table 1; nos. 6-8**). The volume resistivity of the composition is about $6 \times 10^{-4} \Omega\text{-cm}$ for moldable compositions (**Table 2**). It is noted that an article with the above composition is produced by normal plastic molding means (**col. 2 bridged to 3, lines 55+**). Regarding the formation of a fiber network, Examiner takes the position that the formation of said network is inherent to the disclosure as the fibers are surrounded by a polymer matrix and after processing would result in the metal fibers interposed within the matrix.

Response to Arguments

7. Applicant's arguments, see p. 8-9 (112 rejection), filed 9/9/2008, with respect to claims 11, 13, and 16 have been fully considered and are persuasive. The rejection of the above claims has been withdrawn.

8. Applicant's arguments filed 9/9/2008 have been fully considered but they are not persuasive. Applicant argues that Iwase et al. teach away from the present claims of containing at least 30% by weight of fibers. However, Examiner takes the position that the prior art of record teaches 0.5 to 80% by weight. Further, "non-preferred disclosures can be used. A non-preferred portion of a reference disclosure is just as significant as the preferred portion in assessing the patentability of claims." In re Nehrenberg, 280 F.2d 161, 126 USPQ 383 (CCPA 1960). Applicant further argues that the present invention is free of lead. However, Examiner would like to point out that the present claims recite only a "metal compound melting in the range between 100°C and 400°C". There is no disclosure in the independent claim 9 of the particular composition. Therefore, Examiner takes the position that the prior art of record would clearly meet the present claims.

9. Applicant's arguments filed 9/9/2008 regarding the Ito reference have been fully considered but they are not persuasive. Examiner acknowledges the definition of organometallic and the examiner's position with respect to this phrase has been dropped. However, it is noted that this does not change the substance of the Ito

rejection and that Ito still meets the requirements of the present claims. Further, regarding the further argument of the material being "embedded", it is unclear as to where within the rejection Examiner stated the embedding would form a network. Since the composition as disclosed above is injection molded (**col. 4, lines 47+**) and the present invention will inherently form a network for the metal fiber material. Further, Examiner takes the position that normal processing temperatures of thermoplastic materials for molding would inherently melt the stabilizer and thermoplastic material to form the desired matrix for molding. Regarding the stabilizer, as shown by Ito with evidence by Hawley's Condensed Chemical Dictionary, the melting point of dibutyltin maleate, a metal compound disclosed by prior art, is 110°C. Therefore, the metal compound (i.e. dibutyltin maleate) would melt with the processing. Examiner takes the position that the above disclosure by prior art is considered to be the low melting compound as the temperature is within the range presently specified.

10. Applicant's arguments filed 9/9/2008 regarding the Katsumata reference have been fully considered but they are not persuasive. Applicant argues that the prior art only teaches that the conductive fiber deteriorates the structure. However, it is noted that Applicant only pointed out the metal fiber. Further, Examiner notes that the present claims recite "an electrically conducting and/or metallic filler". As shown by the prior art of record, the disclosure is regarding a combination of both a carbon fiber, which is the electrically conducting filler and a metal fiber, which is the metallic filler. Further, as shown above, the combination of the two materials would measure 1 to 80% by weight

and would clearly meet the present limitation. Further, "non-preferred disclosures can be used. A non-preferred portion of a reference disclosure is just as significant as the preferred portion in assessing the patentability of claims." In re Nehrenberg, 280 F.2d 161, 126 USPQ 383 (CCPA 1960). Therefore, the prior art of record clearly meets the present limitations.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PRASHANT J. KHATRI whose telephone number is (571)270-3470. The examiner can normally be reached on M-F 8:00 A.M.-5:00 P.M. (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on (571) 272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PRASHANT J KHATRI
Examiner
Art Unit 1794

/Callie E. Shosho/
Supervisory Patent Examiner, Art Unit 1794